

WBS	Name	Project Manager	2003												2004								
			S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M		
<b>1</b>	<b>Run Ila</b>		[Summary bar]																				
<b>1.1</b>	<b>Beamlines</b>	<b>Valeri Lebedev</b>	[Summary bar]																				
<b>1.1.1</b>	<b>A150/P150 beamline</b>	<b>Valerie Lebedev</b>	[Summary bar]																				
1.1.1.1	Perform differential optics measurements in A150 and P150 lines	Valerie Lebedev	[Task bar]																				
1.1.1.2	Data analysis and upgrade of A150 and P150 lines	Valerie Lebedev	[Task bar]																				
1.1.1.3	Perform Tevatron optics measurements with turn-by-turn BPMs	Valerie Lebedev	[Task bar]																				
1.1.1.4	Data analysis of Tevatron optics measurements	Valerie Lebedev	[Task bar]																				
1.1.1.5	Data analysis of Tevatron coupling	Valerie Lebedev	[Task bar]																				
1.1.1.6	Establish reference differential orbits for beamline diagnostics	Valerie Lebedev	[Task bar]																				
1.1.1.7	Adjust pbar kicker timing	Valerie Lebedev	[Task bar]																				
1.1.1.8	Commission existing BLT (Beam Line Tuner)	Valerie Lebedev	[Task bar]																				
1.1.1.9	Build new BLT and write software	Valerie Lebedev	[Task bar]																				
1.1.1.10	Commission new BLT	Valerie Lebedev	[Task bar]																				
<b>1.1.2</b>	<b>AP3/1/P2/P1 8 GeV beamline</b>	<b>Valerie Lebedev</b>	[Summary bar]																				
1.1.2.1	Perform additional rounds of optics measurements	Valerie Lebedev	[Task bar]																				
1.1.2.2	Measure x-y coupling on Accumulator extraction orbit with quadrupoles	Valerie Lebedev	[Task bar]																				
1.1.2.3	Fine tuning of beamline using orthogonal quads	Valerie Lebedev	[Task bar]																				
1.1.2.4	Construct replacement electronics for SEMs	Valerie Lebedev	[Task bar]																				
1.1.2.5	Matching beamline using background subtraction and amplification	Valerie Lebedev	[Task bar]																				
1.1.2.6	Set hysteresis protocol in AP3/AP1 beamlines	Valerie Lebedev	[Task bar]																				
1.1.2.7	Improvements to MI BLT so that 1000 turns of all 4 bunches is completed	Valerie Lebedev	[Task bar]																				
1.1.2.8	Install Hall probes on 2 quadrupoles in AP1 line	Valerie Lebedev	[Task bar]																				
1.1.2.9	Make magnet measurements with Hall probes	Valerie Lebedev	[Task bar]																				
<b>1.1.3</b>	<b>120 GeV beamline</b>	<b>Valerie Lebedev</b>	[Summary bar]																				
1.1.3.1	Perform optics corrections when target rotation is resumed	Valerie Lebedev	[Task bar]																				
<b>1.2</b>	<b>Main Injector</b>	<b>Shekhar Mishra</b>	[Summary bar]																				
<b>1.2.1</b>	<b>Reduce longitudinal emittance growth</b>	<b>Dave Wildman</b>	[Summary bar]																				
1.2.1.1	Build low level front end for dampers	Dave Wildman	[Task bar]																				
1.2.1.2	Conduct initial damping tests	Dave Wildman	[Task bar]																				
1.2.1.3	Build high power damping system	Dave Wildman	[Task bar]																				
1.2.1.4	Commission high power system with beam	Dave Wildman	[Task bar]																				
<b>1.2.2</b>	<b>Develop 53 MHz BLC System</b>	<b>Joe Dey</b>	[Summary bar]																				
1.2.2.1	Build new up-convert mixer	Joe Dey	[Task bar]																				
1.2.2.2	Build spare: down-convert, digital delay, up-convert modules	Joe Dey	[Task bar]																				
1.2.2.3	Commission BLC with beam	Joe Dey	[Task bar]																				
<b>1.2.3</b>	<b>Further 53 MHz BLC commissioning</b>	<b>Joe Dey</b>	[Summary bar]																				

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			S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F
1.2.3.1	Design and build time delay system	Joe Dey																		
1.2.3.2	Commission time delay system	Joe Dey																		
<b>1.2.4</b>	<b>Implement MI Dampers</b>	<b>G. W. Foster</b>																		
1.2.4.1	Initial FPGA development	G. W. Foster																		
1.2.4.2	Modify and Test Finemet Cavity	G. W. Foster																		
1.2.4.3	R&D Studies	G. W. Foster																		
1.2.4.4	Purchase of power amplifiers	G. W. Foster																		
1.2.4.5	Fabrication of striplines and cavities	G. W. Foster																		
1.2.4.6	Installation of striplines and cavities	G. W. Foster																		
1.2.4.7	Develop FPGA firmware	G. W. Foster																		
1.2.4.8	Commission full MI Damper System	G. W. Foster																		
<b>1.2.5</b>	<b>53/2.5/7.5 MHz BPM's in MI</b>	<b>Brajesh Choudhary</b>																		
1.2.5.1	Develop 2.5 MHz BLT System	Brajesh Choudhary																		
1.2.5.2	Build 2.5 MHz BPM hardware	Brajesh Choudhary																		
1.2.5.3	Install and Commission 2.5 MHz BPM hardware	Brajesh Choudhary																		
<b>1.2.6</b>	<b>2.5 MHz Acceleration</b>	<b>Chandra Bhat</b>																		
1.2.6.1	Develop LLRF	Chandra Bhat																		
1.2.6.2	Commission LLRF	Chandra Bhat																		
1.2.6.3	Full commissioning with BPM's	Chandra Bhat																		
<b>1.2.7</b>	<b>Diagnostics Improvements</b>	<b>Dave Capista</b>																		
1.2.7.1	Perform Diagnostics Improvements	Dave Capista																		
<b>1.2.8</b>	<b>Pbar Tune Meter</b>	<b>Denton Morris</b>																		
1.2.8.1	Develop pbar tune meter	Denton Morris																		
<b>1.2.9</b>	<b>Improvement in MI ramp and closure programs</b>	<b>Bruce Brown</b>																		
1.2.9.1	Improve MI ramp and closure programs	Bruce Brown																		
<b>1.2.10</b>	<b>Automate Tune and Chromaticity Measurement</b>	<b>Guan Wu</b>																		
1.2.10.1	Design pinger	Guan Wu																		
1.2.10.2	Build Pinger and Write Software	Guan Wu																		
1.2.10.3	Install pinger	Guan Wu																		
1.2.10.4	Commission pinger	Guan Wu																		
<b>1.3</b>	<b>Pbar Source</b>	<b>Dave McGinnis</b>																		
<b>1.3.1</b>	<b>Commission shot lattice to stacking lattice ramp</b>	<b>Steve Werkema</b>																		
1.3.1.1	Verify present ramps	Steve Werkema																		
1.3.1.2	Verify tune and B-field convergence	Steve Werkema																		
1.3.1.3	Measure stacking and shot lattice properties	Steve Werkema																		
1.3.1.4	Write hysteresis and sequencer code	Steve Werkema																		

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<b>1.3.2</b>	<b>Debuncher Momentum Cooling Improvements</b>	<b>Paul Derwent</b>																
1.3.2.1	Install Band 3 and 4 filters	Paul Derwent																
1.3.2.2	Improve momentum cooling	Paul Derwent																
<b>1.3.3</b>	<b>Commission Core Momentum-Stacktail Compensation Legs</b>	<b>Paul Derwent</b>																
1.3.3.1	Phase in compensation legs	Paul Derwent																
1.3.3.2	Measure Stacktail BTF	Paul Derwent																
1.3.3.3	Adjust Simulation	Paul Derwent																
<b>1.3.4</b>	<b>Bands 2&amp;3 Transverse Core Cooling Equalizers</b>	<b>Dave McGinnis</b>																
1.3.4.1	Finish second pass design	Dave McGinnis																
1.3.4.2	Install and commission in the tunnel	Dave McGinnis																
<b>1.3.5</b>	<b>AP1 Bunch by Bunch length monitor</b>	<b>Dave Peterson</b>																
1.3.5.1	Design Hardware	Dave Peterson																
1.3.5.2	Build Hardware	Dave Peterson																
1.3.5.3	Write Software	Dave Peterson																
1.3.5.4	Commission System	Dave Peterson																
<b>1.3.6</b>	<b>Install Moveable Quad stands into Debuncher</b>	<b>Keith Gollwitzer</b>																
1.3.6.1	Develop list of cable pulls	Keith Gollwitzer																
1.3.6.2	Identify resources and schedule for installation	Keith Gollwitzer																
1.3.6.3	Install stands in tunnel	Keith Gollwitzer																
1.3.6.4	Pull Cables	Keith Gollwitzer																
1.3.6.5	Hook up stepper motor control	Keith Gollwitzer																
<b>1.3.7</b>	<b>Build 1-Q Transverse Damper for Accumulator</b>	<b>Dave Peterson</b>																
1.3.7.1	Design Electronics	Dave Peterson																
1.3.7.2	Build electronics	Dave Peterson																
1.3.7.3	Install and commission electronics and damper system	Dave Peterson																
<b>1.3.8</b>	<b>Develop Transverse Compensation of the Stacktail</b>	<b>Steve Werkema</b>																
1.3.8.1	Develop a plan to combat 3.2 GHz resonance	Steve Werkema																
1.3.8.2	RF engineering	Steve Werkema																
<b>1.3.9</b>	<b>Transverse Debuncher Notch Filters for Bands 1 &amp; 2</b>	<b>Ralph Pasquinelli</b>																
1.3.9.1	Begin procurement of BAWs	Ralph Pasquinelli																
1.3.9.2	Design system	Ralph Pasquinelli																
1.3.9.3	Assemble and Fabricate Filters	Ralph Pasquinelli																
1.3.9.4	Installation	Ralph Pasquinelli																
1.3.9.5	Commission and phase the system	Ralph Pasquinelli																
<b>1.3.10</b>	<b>Make Flying Wires in Accumulator Operational</b>	<b>Vladimir Nagaslaev</b>																
1.3.10.1	Upgrade software	Vladimir Nagaslaev																

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			S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F
1.3.10.2	Upgrade hardware	Vladimir Nagaslaev																		
1.3.10.3	Recommission flying wires	Vladimir Nagaslaev																		
<b>1.3.11</b>	<b>Commission Accumulator Quadrupole Pickup</b>	<b>Vladimir Nagaslaev</b>																		
1.3.11.1	Rebuild tunnel preamps	Vladimir Nagaslaev																		
1.3.11.2	Develop PC front-end DAQ and analysis	Vladimir Nagaslaev																		
<b>1.3.12</b>	<b>Upgrade Stacktail Notch Filter</b>	<b>Vladimir Nagaslaev</b>																		
1.3.12.1	Procure BAWs	Vladimir Nagaslaev																		
1.3.12.2	Design of FIR Bandpass Filter	Vladimir Nagaslaev																		
1.3.12.3	Fabrication and testing of FIR Filters	Vladimir Nagaslaev																		
1.3.12.4	Install and commission new BAWs	Vladimir Nagaslaev																		
<b>1.4</b>	<b>Proton Source</b>	<b>Bob Webber</b>																		
<b>1.4.1</b>	<b>Investigating Booster Performance Limitations</b>	<b>Ray Tomlin</b>																		
1.4.1.1	Injection and Capture Studies	Ray Tomlin																		
1.4.1.2	Space Charge Effect Studies	Ray Tomlin																		
1.4.1.3	Transition Crossing Studies	Ray Tomlin																		
1.4.1.4	Transverse Damper investigations in Booster	Ray Tomlin																		
<b>1.4.2</b>	<b>Aperture and Orbit Improvements</b>	<b>Eric Prebys</b>																		
1.4.2.1	Commission Ramped Correctors	Eric Prebys																		
1.4.2.2	Magnet Moves	Eric Prebys																		
<b>1.4.3</b>	<b>Phase Lock Improvements</b>	<b>Bill Pellico</b>																		
1.4.3.1	Determine specific details and shortcomings of existing hardware	Bill Pellico																		
1.4.3.2	Attempt phase lock of beam signal rather than VCO signal to MI	Bill Pellico																		
1.4.3.3	Design and Produce New Implementation	Bill Pellico																		
1.4.3.4	Install, and commission new implementation	Bill Pellico																		
<b>1.4.4</b>	<b>Booster Longitudinal dampers</b>	<b>Bill Pellico</b>																		
1.4.4.1	Complete and debug design of new system and fabricate circuits	Bill Pellico																		
1.4.4.2	Install and commission new system	Bill Pellico																		
<b>1.4.5</b>	<b>Booster Beam Collimator System</b>	<b>Jim Lackey</b>																		
1.4.5.1	Complete shielding design	Jim Lackey																		
1.4.5.2	Procure shielding materials	Jim Lackey																		
1.4.5.3	Install shielding	Jim Lackey																		
1.4.5.4	Commission collimation system with beam	Jim Lackey																		
<b>1.5</b>	<b>Reliability</b>	<b>Paul Czarapata</b>																		
<b>1.5.1</b>	<b>VFC</b>	<b>Dan Wolff</b>																		
1.5.1.1	Install new VFC cards	Dan Wolff																		
<b>1.5.2</b>	<b>Wet Engines</b>	<b>Jay Theilacker</b>																		

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1.5.2.1	Overhaul Wet Engines	Jay Theilacker																		
<b>1.5.3</b>	<b>Cold Compressor Bearings</b>	<b>Jay Theilacker</b>																		
1.5.3.1	Replace Cold Compressor bearings	Jay Theilacker																		
<b>1.5.4</b>	<b>Compressor Starters</b>	<b>Jay Theilacker</b>																		
1.5.4.1	Replace compressor starters	Jay Theilacker																		
<b>1.5.5</b>	<b>PEI Water Cooled Transformers</b>	<b>Julius Lentz</b>																		
1.5.5.1	Rebuild PEI Transformers	Julius Lentz																		
1.5.5.2	Replace PEI Transformers	Julius Lentz																		
<b>1.5.6</b>	<b>Replacement Kicker Ceramic Beam Tube</b>	<b>Chris Jensen</b>																		
1.5.6.1	Develop Replacement Kicker Ceramic Beam Tube	Chris Jensen																		
<b>1.5.7</b>	<b>CAMAC Power Supply Replacement in Controls</b>	<b>Jim Patrick</b>																		
1.5.7.1	Replace CAMAC power supplies	Jim Patrick																		
<b>1.5.8</b>	<b>Other Vulnerabilities</b>	<b>Paul Czarapata</b>																		
1.5.8.1	Perform Vulnerability Assessment	Paul Czarapata																		
1.5.8.2	Address Other Vulnerabilities	Paul Czarapata																		
<b>1.5.9</b>	<b>Ongoing Assessment of Downtime and Failures</b>	<b>Paul Czarapata</b>																		
1.5.9.1	Perform ongoing assessment of downtime and failures	Paul Czarapata																		
<b>1.6</b>	<b>SDA</b>	<b>Jean Slaughter</b>																		
<b>1.6.1</b>	<b>Inputs to SDA and SDA Editor</b>	<b>Mike Church</b>																		
1.6.1.1	Review inputs and timing	Mike Church																		
1.6.1.2	Establish routine validation	Mike Church																		
<b>1.6.2</b>	<b>Data acquisition - DAE engines and SYBASE Database</b>	<b>Kevin Cahill</b>																		
1.6.2.1	Reduce data latency	Kevin Cahill																		
1.6.2.2	Improve alarm function	Kevin Cahill																		
<b>1.6.3</b>	<b>Servlet interface and Calibrations</b>	<b>Timofei Bolshakov</b>																		
1.6.3.1	Improve Servlet interface and calibration	Timofei Bolshakov																		
<b>1.6.4</b>	<b>SDA Viewer, PlotViewer, Report Writer</b>	<b>Jean Slaughter</b>																		
1.6.4.1	Evaluate and document interactive tools	Jean Slaughter																		
<b>1.6.5</b>	<b>OSDA interface to SDA and lumberjack data</b>	<b>Paul Lebrun</b>																		
1.6.5.1	Add data access from snapshot and fast time plots	Paul Lebrun																		
1.6.5.2	Develop detector classes for flying wires, synchrotron light and p	Paul Lebrun																		
1.6.5.3	Evaluate ntuple approach and build prototypes	Paul Lebrun																		
<b>1.6.6</b>	<b>Definition of Standard Tables and Plots</b>	<b>Jean Slaughter</b>																		
1.6.6.1	Complete specification document	Jean Slaughter																		
<b>1.6.7</b>	<b>Store checker</b>	<b>Jean Slaughter</b>																		
1.6.7.1	Develop Store Checker	Jean Slaughter																		

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1.6.7.2	Ongoing review of Store Checker results	Jean Slaughter																		
<b>1.6.8</b>	<b>Shot Analysis -- Instrumentation</b>	<b>Jean Slaughter/Paul Lebrun</b>	■	■																
1.6.8.1	Organization of effort	Jean Slaughter/Paul Lebrun	■																	
<b>1.6.9</b>	<b>Shot Analysis - Accelerator Complex</b>	<b>Mike Syphers</b>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
1.6.9.1	Standardize and automate the shots log	Mike Syphers																		
1.6.9.2	Automate numerical part of Mike Church's summary spreadshee	Mike Syphers																		
1.6.9.3	Automatic WWW page pert store	Mike Syphers																		
1.6.9.4	Followup	Mike Syphers																		
<b>1.6.10</b>	<b>Longterm storage for lumberjack data</b>	<b>Paul Lebrun</b>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
1.6.10.1	Develop long term data storage	Paul Lebrun																		
<b>1.6.11</b>	<b>Data Acquisition Application for Dedicated Studies</b>	<b>Valerie Lebedev/William Piccoli</b>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
1.6.11.1	Write data application program	Valerie Lebedev/William Piccoli																		
<b>1.7</b>	<b>Tevatron</b>	<b>Vladimir Shiltsev</b>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
<b>1.7.1</b>	<b>Commission transverse dampers</b>	<b>Jim Steimel</b>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
1.7.1.1	Commission horizontal dampers	Jim Steimel																		
1.7.1.2	Construct vertical dampers	Jim Steimel																		
1.7.1.3	Commission vertical dampers	Jim Steimel																		
<b>1.7.2</b>	<b>Injection dampers</b>	<b>J. Steimel</b>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
1.7.2.1	Purchase power amplifiers	J. Steimel																		
1.7.2.2	Install power amplifiers	J. Steimel																		
1.7.2.3	Commission system	J. Steimel																		
<b>1.7.3</b>	<b>C0 Lambertson replacement</b>	<b>Peter Garbincius</b>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
1.7.3.1	Construct shunt supply	Peter Garbincius																		
1.7.3.2	Prepare FMI magnets	Peter Garbincius																		
1.7.3.3	Mechanical planning and preparation	Peter Garbincius																		
1.7.3.4	Remove Lambertsons and install FMI magnets	Peter Garbincius																		
<b>1.7.4</b>	<b>A0 straight section modification</b>	<b>Mike Martens</b>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
1.7.4.1	Complete optics calculations	Mike Martens																		
1.7.4.2	Plan work in tunnel	Mike Martens																		
1.7.4.3	Fabricate parts	Mike Martens																		
1.7.4.4	Install new straight section	Mike Martens																		
1.7.4.5	Commission new lattice	Mike Martens																		
<b>1.7.5</b>	<b>Orbit Smoothing</b>	<b>Mike Martens</b>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
1.7.5.1	Develop new orbit smoothing algorithms	Mike Martens																		
1.7.5.2	Test new orbit smoothing algorithms	Mike Martens																		
<b>1.7.6</b>	<b>Beam-beam studies and calculations</b>	<b>Tanaji Sen</b>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

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1.7.6.1	Ongoing beam studies and calculations	Tanaji Sen																		
<b>1.7.7</b>	<b>Instability studies</b>	<b>Piotr Ivanov</b>																		
1.7.7.1	Beam studies and calculations	Piotr Ivanov																		
1.7.7.2	Development of head-tail diagnostics	Piotr Ivanov																		
<b>1.7.8</b>	<b>150 GeV tune and coupling drift; b2 unwind</b>	<b>Mike Martens</b>																		
1.7.8.1	Beam studies	Mike Martens																		
1.7.8.2	Perform magnet measurements at MTF	Mike Martens																		
<b>1.7.9</b>	<b>TEL</b>	<b>Vladimir Shiltsev</b>																		
1.7.9.1	Beam studies	Vladimir Shiltsev																		
1.7.9.2	Modify TEL	Vladimir Shiltsev																		
<b>1.7.10</b>	<b>Schottky detector at E17</b>	<b>Ralph Pasquinelli</b>																		
1.7.10.1	Construct Schottky detector	Ralph Pasquinelli																		
1.7.10.2	Install Schottky detector	Ralph Pasquinelli																		
1.7.10.3	Commission Schottky detector	Ralph Pasquinelli																		
<b>1.7.11</b>	<b>Tune feedback</b>	<b>CY Tan</b>																		
1.7.11.1	Develop a plan for tune feedback system	CY Tan																		
<b>1.7.12</b>	<b>Longitudinal dampers</b>	<b>Jim Steimel</b>																		
1.7.12.1	Develop PLL and notch filter	Jim Steimel																		
1.7.12.2	Commission Longitudinal Damper	Jim Steimel																		
<b>1.7.13</b>	<b>Synchrotron Light Monitor</b>	<b>Harry Cheung</b>																		
1.7.13.1	Complete commissioning	Harry Cheung																		
<b>1.7.14</b>	<b>Orbit motion spectrometer</b>	<b>Xialong Zhang</b>																		
1.7.14.1	Beam studies	Xialong Zhang																		
<b>1.7.15</b>	<b>Investigation RF noise</b>	<b>Valerie Lebedev</b>																		
1.7.15.1	Beam studies	Valerie Lebedev																		
<b>1.7.16</b>	<b>Tevatron vacuum</b>	<b>Bruce Hanna</b>																		
1.7.16.1	Purchase ion pumps	Bruce Hanna																		
1.7.16.2	Install ion pumps	Bruce Hanna																		
<b>1.7.17</b>	<b>Study Collimators and Losses</b>	<b>Ron Moore</b>																		
1.7.17.1	Beam loss simulaions and measurements	Ron Moore																		
1.7.17.2	Install scintillator at D49	Ron Moore																		
<b>1.7.18</b>	<b>Improve Diagnostics</b>	<b>Stephen Pordes</b>																		
1.7.18.1	Upgrade FW CPU	Stephen Pordes																		
1.7.18.2	Upgrade SBD	Stephen Pordes																		
<b>1.7.19</b>	<b>Pbar Tunemeter</b>	<b>CY Tan</b>																		
1.7.19.1	Reassemble tunemeter	CY Tan																		

WBS	Name	Project Manager	2003												2004					
			S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F
1.7.19.2	Improve measurement technique	CY Tan																		
<b>1.8</b>	<b>Recycler</b>	<b>Peter Limon</b>	▼																	
<b>1.8.1</b>	<b>Mechanical Modifications</b>	<b>P. Limon</b>	▼																	
1.8.1.1	Vacuum Upgrade	T. Anderson																		
1.8.1.2	Vacuum experiments	H. Piekarz																		
1.8.1.3	NuMI Coordination	J. Misek																		
1.8.1.4	Ecool Coordination	J. Leibfritz																		
1.8.1.5	MI Modifications	J. Liebfriz																		
1.8.1.6	Transfer Line Geom	A. Marchionni																		
<b>1.8.2</b>	<b>Beams &amp; Studies Coordination</b>	<b>S. Mishra/J. Marriner</b>	▼																	
1.8.2.1	FW & IPM Calib.	M. Hu																		
1.8.2.2	Inj. & Lattice match.	A. Marchionni																		
1.8.2.3	BPM Studies	B. Choudhary																		
1.8.2.4	RR Vacuum Studies	K. Gounder																		
1.8.2.5	Long. Emitt. Growth	J. Marriner																		
1.8.2.6	RF Manipulations	C. Bhat																		
1.8.2.7	Meas. Central Momen	D. Broemmelsiek																		
1.8.2.8	Ion Clearing	K. Gounder																		
1.8.2.9	Pbar Transfer Effic.	J. Marriner																		
1.8.2.10	Pbar Cooling Studies	R. Pasquinelli																		
1.8.2.11	MI Effects	S. Pruss																		
1.8.2.12	Improved Operations	S. Mishra																		
<b>1.8.3</b>	<b>Instrumentation &amp; Software</b>	<b>J. Butler</b>	▼																	
<b>1.8.3.1</b>	<b>Instrumentation</b>	<b>P. Wilson</b>	▼																	
1.8.3.1.1	BPMs	B. Choudhary																		
1.8.3.1.2	IPMs	M. Hu																		
1.8.3.1.3	Flying wires	A. Marchionni																		
1.8.3.1.4	Multi-wires	M-J. Yang																		
1.8.3.1.5	BLT	D. Broemmelsiek																		
1.8.3.1.6	Schottky	D. Broemmelsiek																		
1.8.3.1.7	Inj. Dampers	G.W. Foster																		
<b>1.8.3.2</b>	<b>Software</b>	<b>D. Petravick</b>	▼																	
1.8.3.2.1	BPMs	B. Choudhary																		
1.8.3.2.2	IPMs	M. Hu																		
1.8.3.2.3	Flying Wires	A. Marchionni																		
1.8.3.2.4	Multi-wires	M-J. Yang																		

WBS	Name	Project Manager	2003												2004					
			S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F
1.8.3.2.5	BLT	D. Broemmelsiek																		
1.8.3.2.6	Schottky	D. Broemmelsiek																		
1.8.3.2.7	Inj. Dampers	G.W. Foster																		
1.8.3.2.8	Pbar extraction	D. Broemmelsiek																		
1.8.3.2.9	Corr.Element Cntrl	G. Wu																		
1.8.3.2.10	Emitt. Measurements	K. Gounder																		
1.8.3.2.11	System Software	??																		
1.8.3.2.12	Database	C. Gattuso																		
1.8.3.2.13	Closure Control	G. Wu																		
<b>1.8.4</b>	<b>Stochastic Cooling</b>	<b>R. Pasquinelli</b>																		
1.8.4.1	Optimize operation	R. Pasquinelli																		
<b>1.9</b>	<b>Daily Operations &amp; Maintenance</b>																			
1.9.1	Perform daily operations & maintenance work																			
<b>1.10</b>	<b>Shutdown</b>																			
1.10.1	Perform Shutdown work																			
2	NuMI																			
3	MiniBooNE																			
4	SY120																			
5	E-cooling																			
6	Run IIb																			
7	A0 Photoinjector																			
8	Muon Cooling																			
9	Linear Collider																			
10	LHC																			
11	VLHC																			
12	Other																			